ABSTRACT OF THE DISCLOSURE

A magneto-resistive device is improved in characteristics by removing a surface oxide film to reduce the resistance and reducing an ion beam damage. The magneto-resistive device has a magneto-resistive layer which comprises a tunnel barrier layer, an underlying pinned layer, and an overlying free layer. A non-magnetic layer is formed on the free layer for protection. A composite-layer film comprised of an insulating layer and a damage reducing layer is formed in contact with an effective region which is effectively involved in detection of magnetism in the magneto-resistive layer without overlapping with the effective region. The damage reducing layer is made of a material which includes at least one element, the atomic weight of which is larger than that of silicon. The insulating layer and damage reducing layer do not constitute a magnetic domain control layer for applying a biasing magnetic field to the free layer.